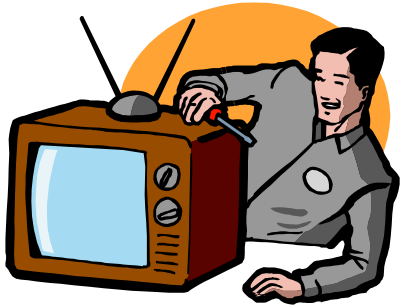
This training will cover the following models:



- SPK4215M (display only)
- SPK4215 (with set-top box)

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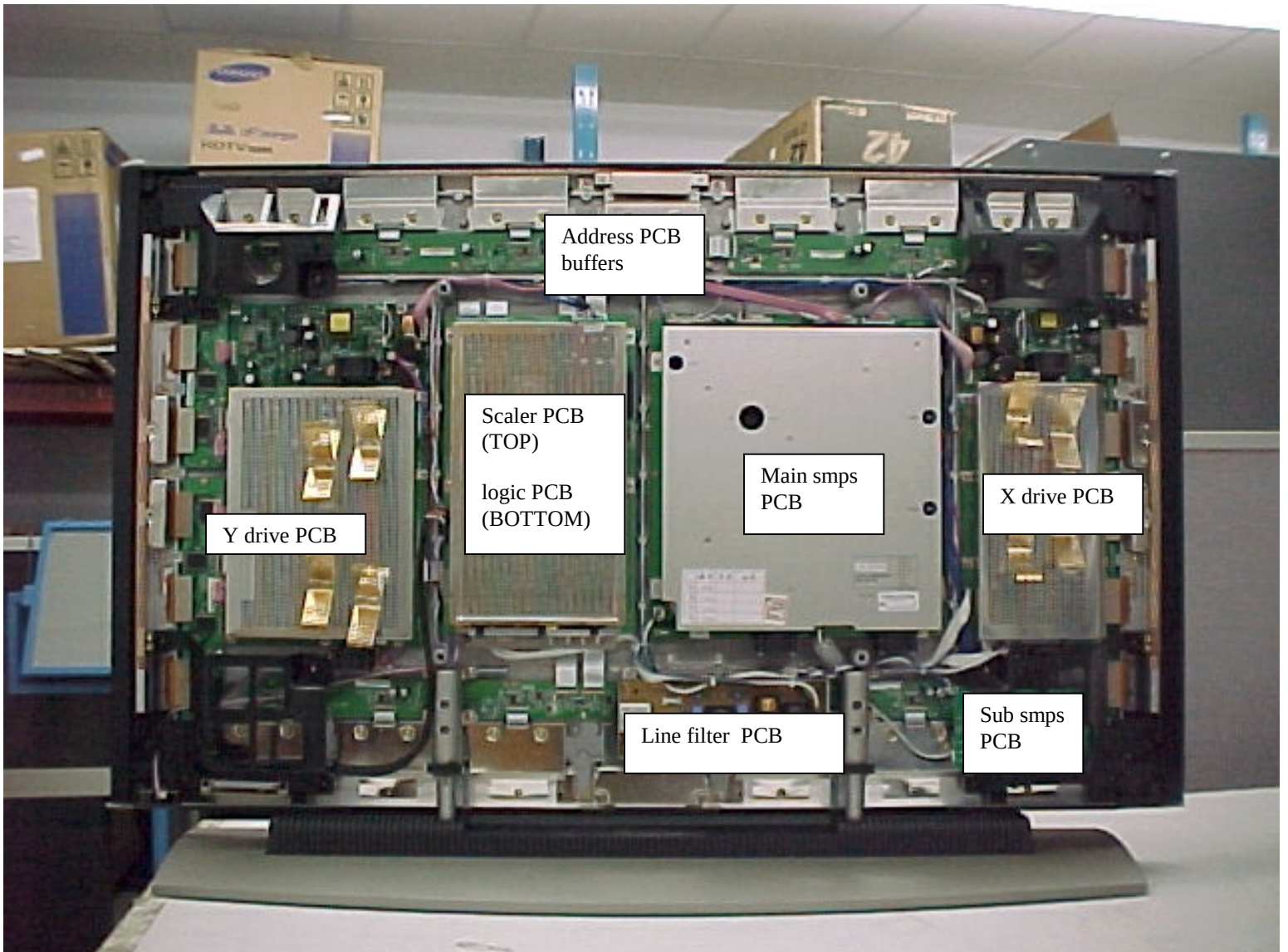
Rear view of back cover

Rear view, cover removed



Part #'s

SPK4215M / D1 chassis / 6 fans kit part # **ST-SPK4215MF**

SPK4215M / D3 chassis / fan less kit part # **ST-SPK4215M**

Parts supplied in SPK4215M kits

1. x driver	**8. Logic buffer "E"**
2. y driver	**9. Logic buffer "F"**
3. logic	**10. Logic buffer "G"**
4. scalier	**11. Logic buffer "H"**
5. smps sub, (only D 1 chassis	**12. Y buffer, up**
6. smps main	**13. Y buffer, down**
7. line filter	

Note: parts are not interchangeable between D1 and D3 chassis

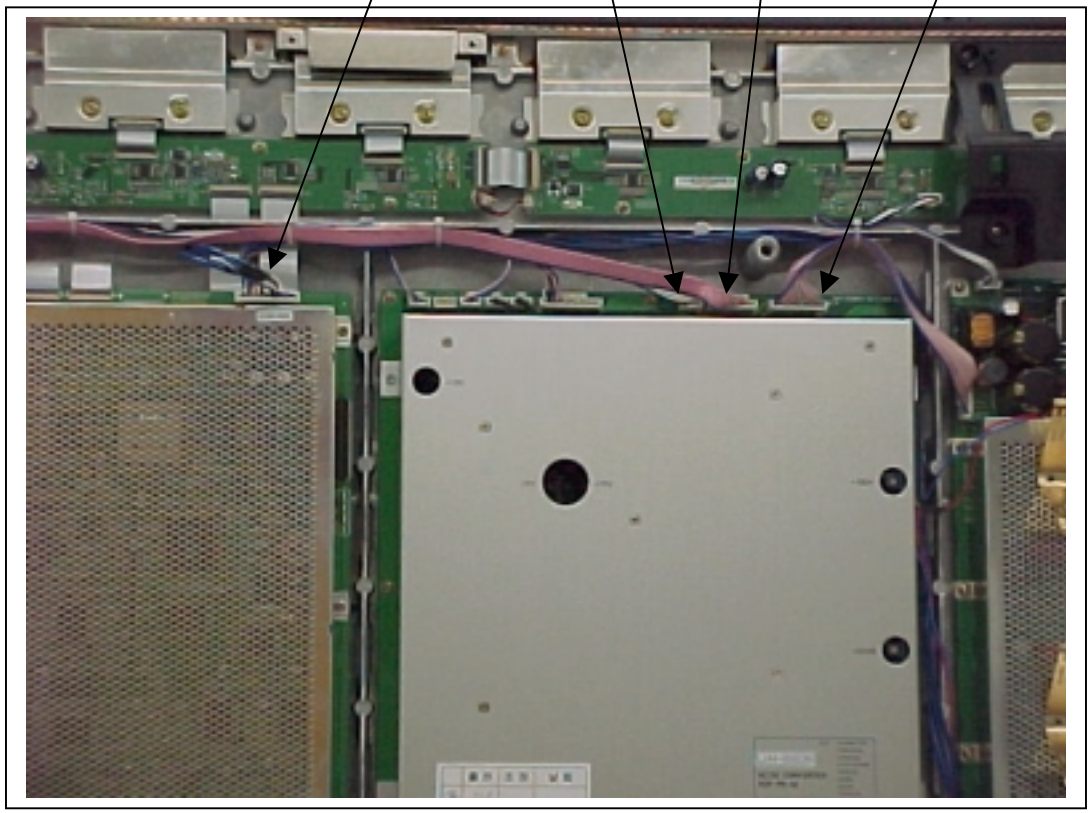
Serial # range

Model #	Serial #	Chassis	Note
SPK4215M	**K13531CR600001~85** **K13531CR800001~100**	**D1**	**6 fans**
SPK4215M	**K13531CR900001~94** **production after, 9/01**	**D3**	**fan less**

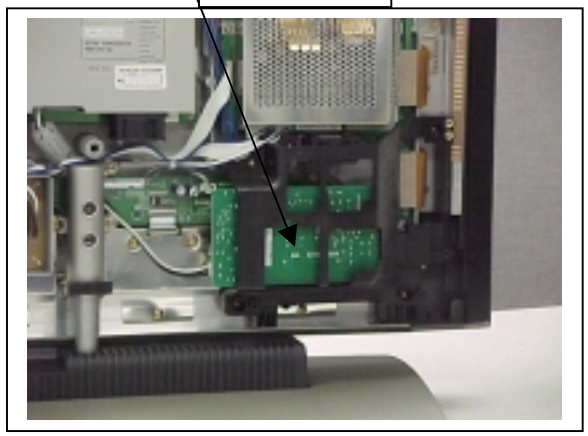
Main SMPS power supply, shows location of connectors. Small figure is location of (sub SMPS power supply)

CN8007 CN8008 CN8010 CN8009

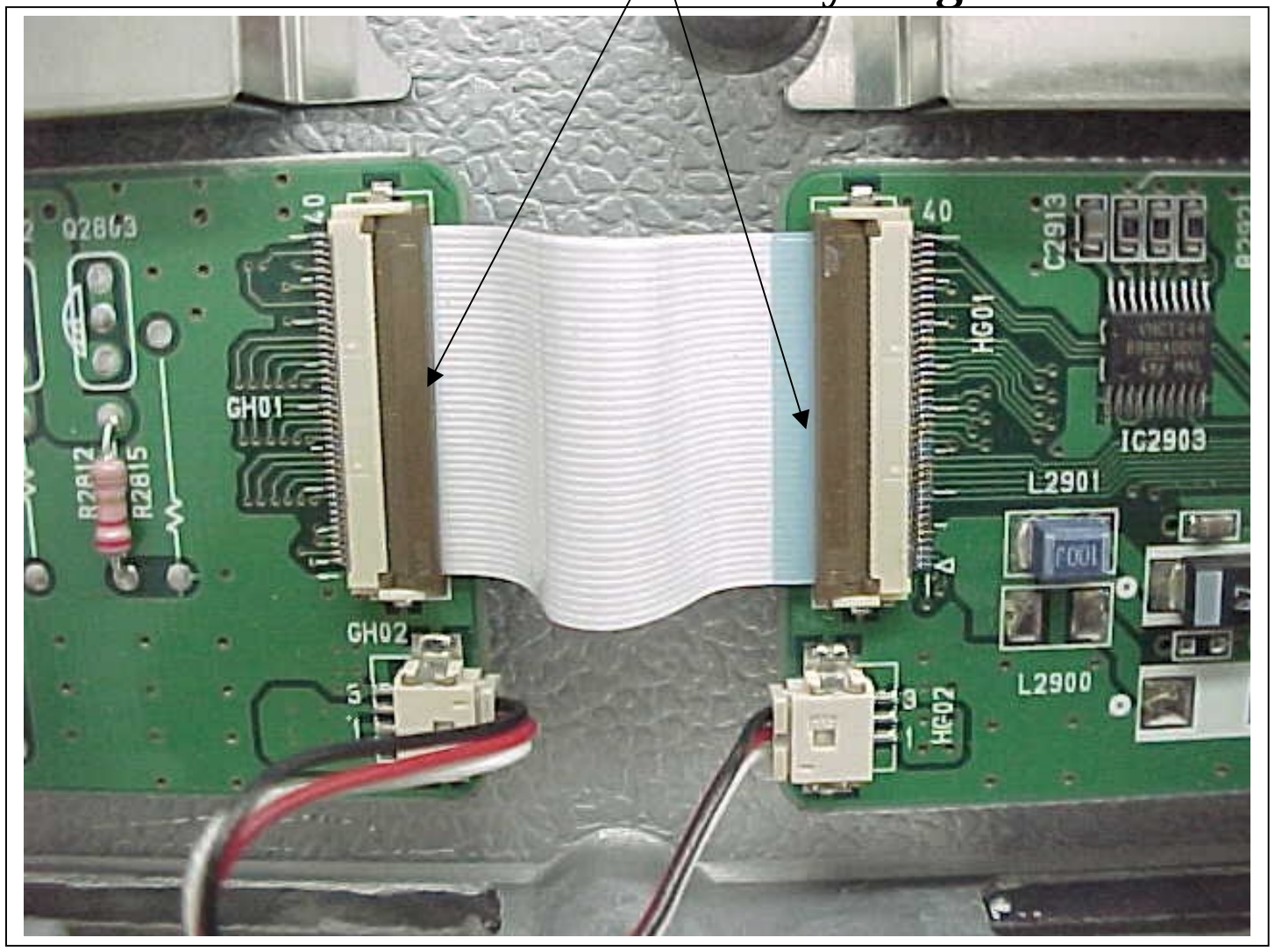
SA SL SY SX



Bottom right corner



When making the connection; be careful.
Brown connector is very fragile.



Always check power supply voltages. Voltages are measured with power on, unless noted.

Connector SA / Scalier			
Pin #	**type**	**voltage**	**note**
1	stby	5.0	off, 5.0
2	Gnd		
3	Gnd		
4	sub	5.0	
5	Rly	3.3	off, 1.0
6	Gnd		
7	Nc		
8	Gnd		
9	Gnd		
10	Nc		
11	sub	9.0	
12	Sub	5.0	off, 1.7
13	Nc		

Connector SL / Logic			
Pin #	**type**	**voltage**	**note**
1		5.0dc	
2	Gnd		
3		5.0	
4	Gnd		

Connector XF / Fan			
Pin #	**type**	**voltage**	**note**
1		12	
2	Gnd		
3	Nc		
4	Nc		

Connector SX / x driver			
Pin #	**type**	**voltage**	**Note**
1		5.0	
2	Gnd		
3		18.0	
4	Gnd		
5	Nc		
6	Gnd		
7		70.0	
8	Nc		
9	Gnd		
10	Gnd		
11		180.0	
12		180.0	

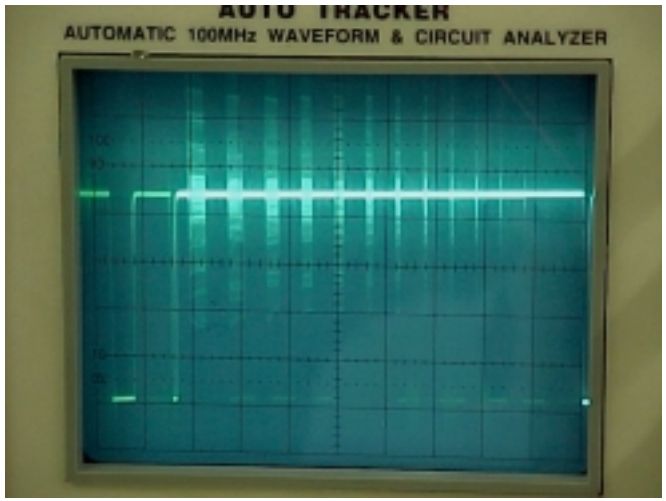
Connector SY / y driver			
Pin #	**type**	**voltage**	**Note**
1		5.0	
2	Gnd		
3		18.0	
4	Gnd		
5	Gnd		
6	Gnd		
7	Nc		
8		180.0	
9		180.0	
10	Nc		

Volts and waveforms from Front panel PCB test points

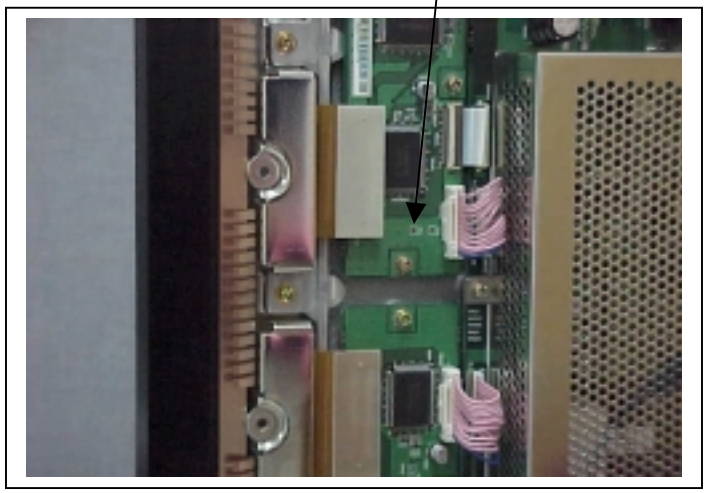
Connector CN50, power button	
Pin 1	Blue wire, 5 volts dc, goes low (0V) when button is pressed
Pin 2	Gnd
Pin 3	Gnd

Connector CN5, LED display and remote receiver	
Pin 1	Standby 5 volts dc
Pin 2	Gnd
Pin 3	Remote IR signal, see figure
Pin 4	Gnd
Pin 5	Red LED, 0.7 volts dc
Pin 6	Green LED, 5.0 volts dc
Pin 7	**Nc**

Remote control IR signal, measured when button is pressed. 5Vpp

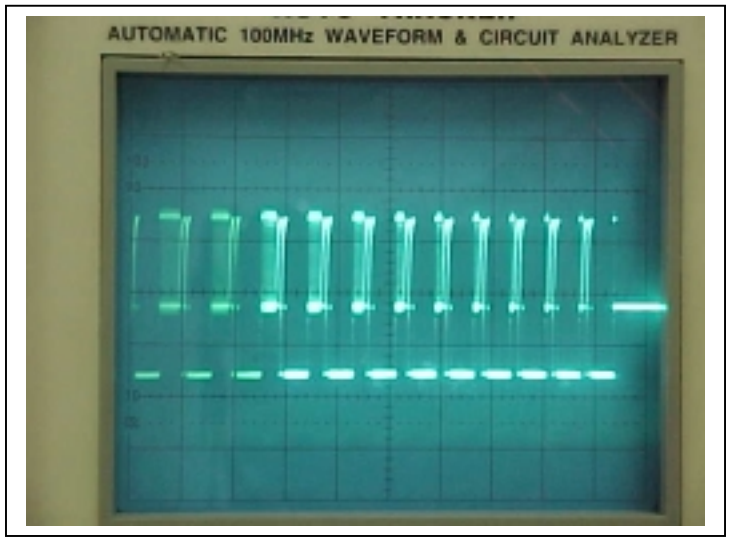


Volts and waveforms from Y – buffer PCB test points. Use figures to locate test points. TPVL / TPVH

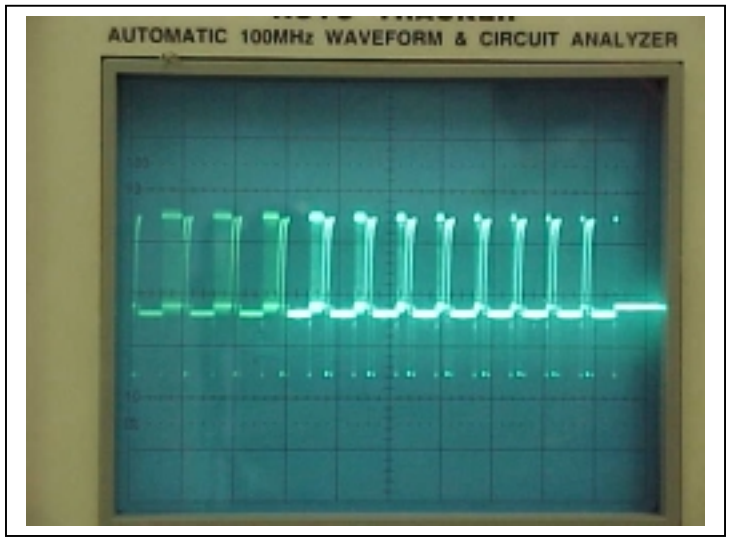


Waveform is 300Vpp@ 5ms, shows pulse for 12 sub fields

TPVL

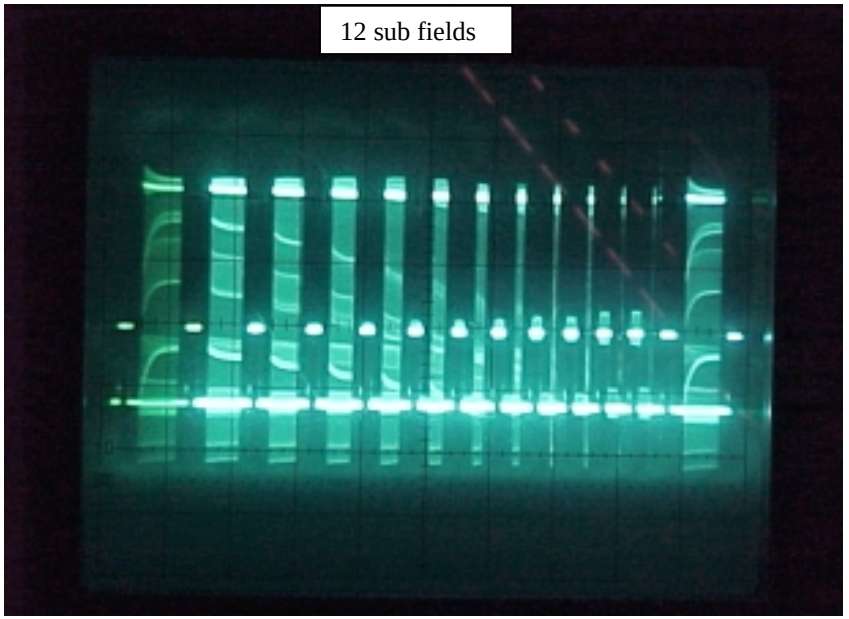


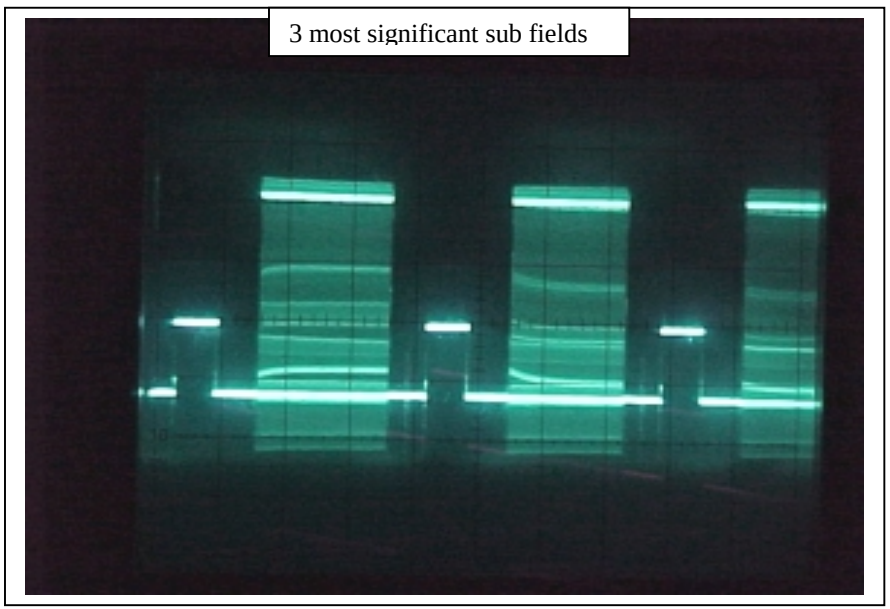
TPVH

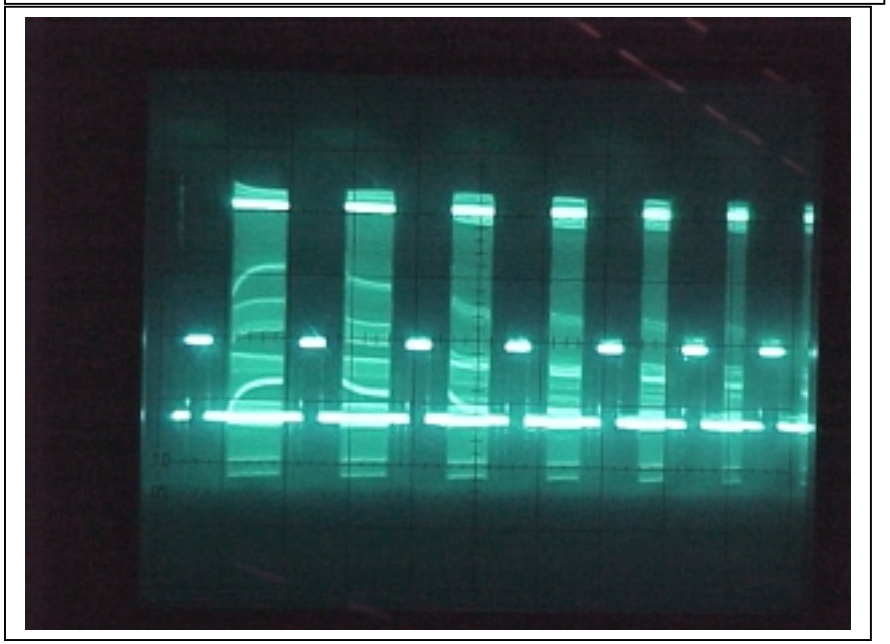


X driver PCB, waveform is 12 sub fields signal. 300Vpp / 2ms

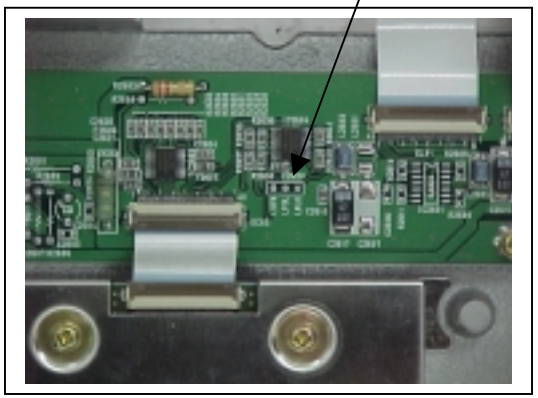
TEST POINT “CN4006”



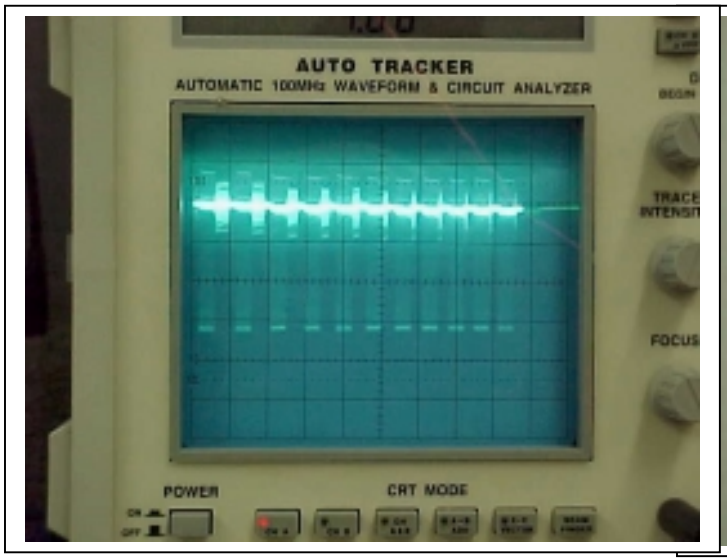




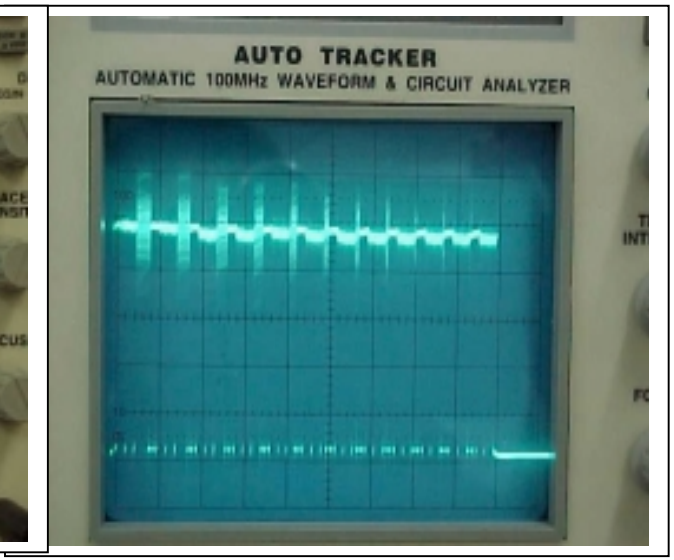
Volts and waveforms from Top Address Buffer PCB test points.
Use figures to locate test points. TPUSTB / UBLK / UPOL



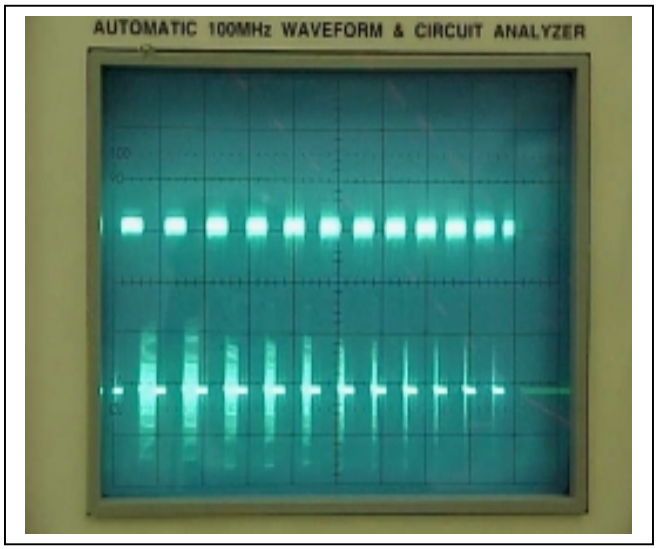
TPUSTB, 7Vpp / 1ms



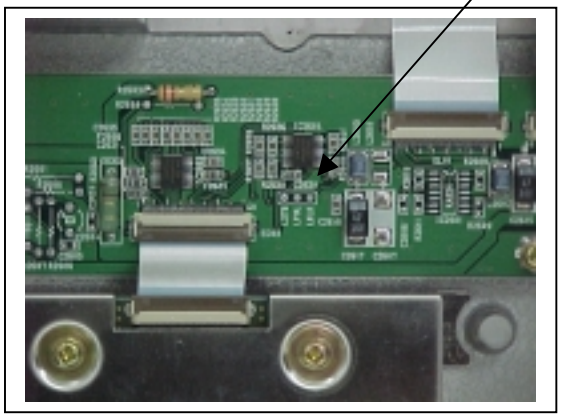
TPUBLK, 5Vpp / 1ms



TPUPOL, 4.5Vpp / 1ms

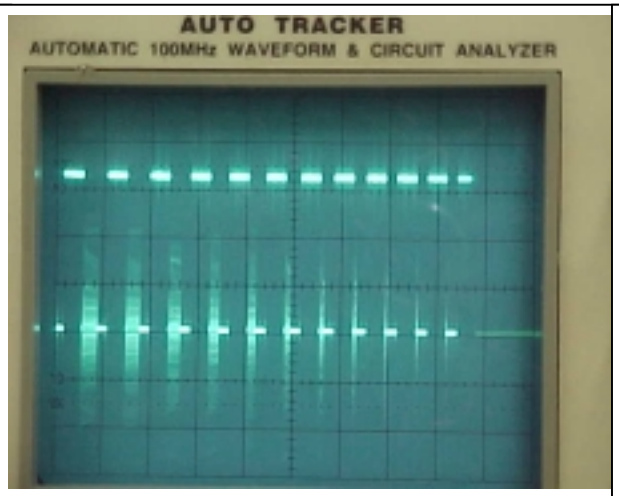


Volts and waveforms from Lower Address Buffer PCB test points. 300Vpp / 2ms Use figures to locate test points. TPLSTB / LBLK / LPOL

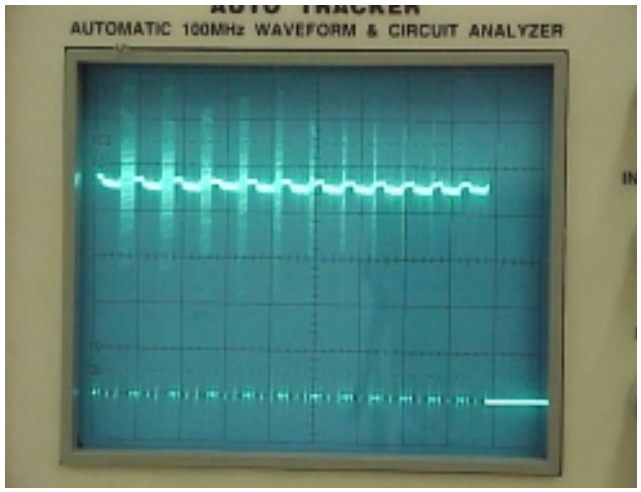


TPLSTB, 2.5Vpp / 1ms

TPLBLK, 3.5Vpp / 1ms



TPLPOL, 6Vpp / 1ms



What the screen will look like for different problems. Kit with all PCBs will be used to service set.

1. **x driver**
2. **y driver**
3. **logic**
4. **scalier**
5. **line filter**
6. **smps main**
7. **smps sub, D1 chassis only**
8. **six different buffer pcb**

Part #''s

SPK4215 / D1 chassis / 6 fans kit
part # **ST-SPK4215MF**

SPK4215 / D3 chassis / fan less kit
part # **ST-SPK4215M**

note: check page 4 for chassis id

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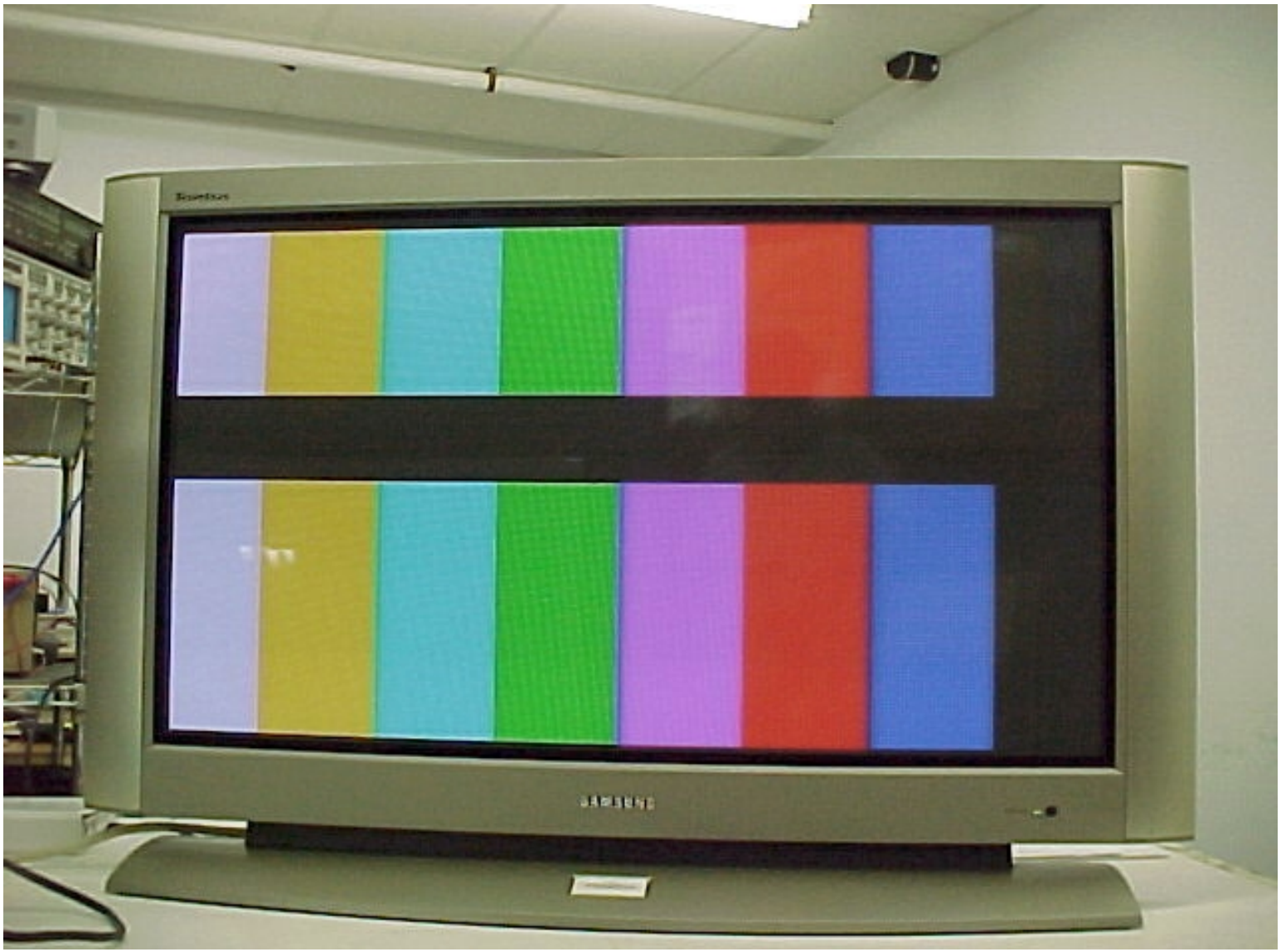
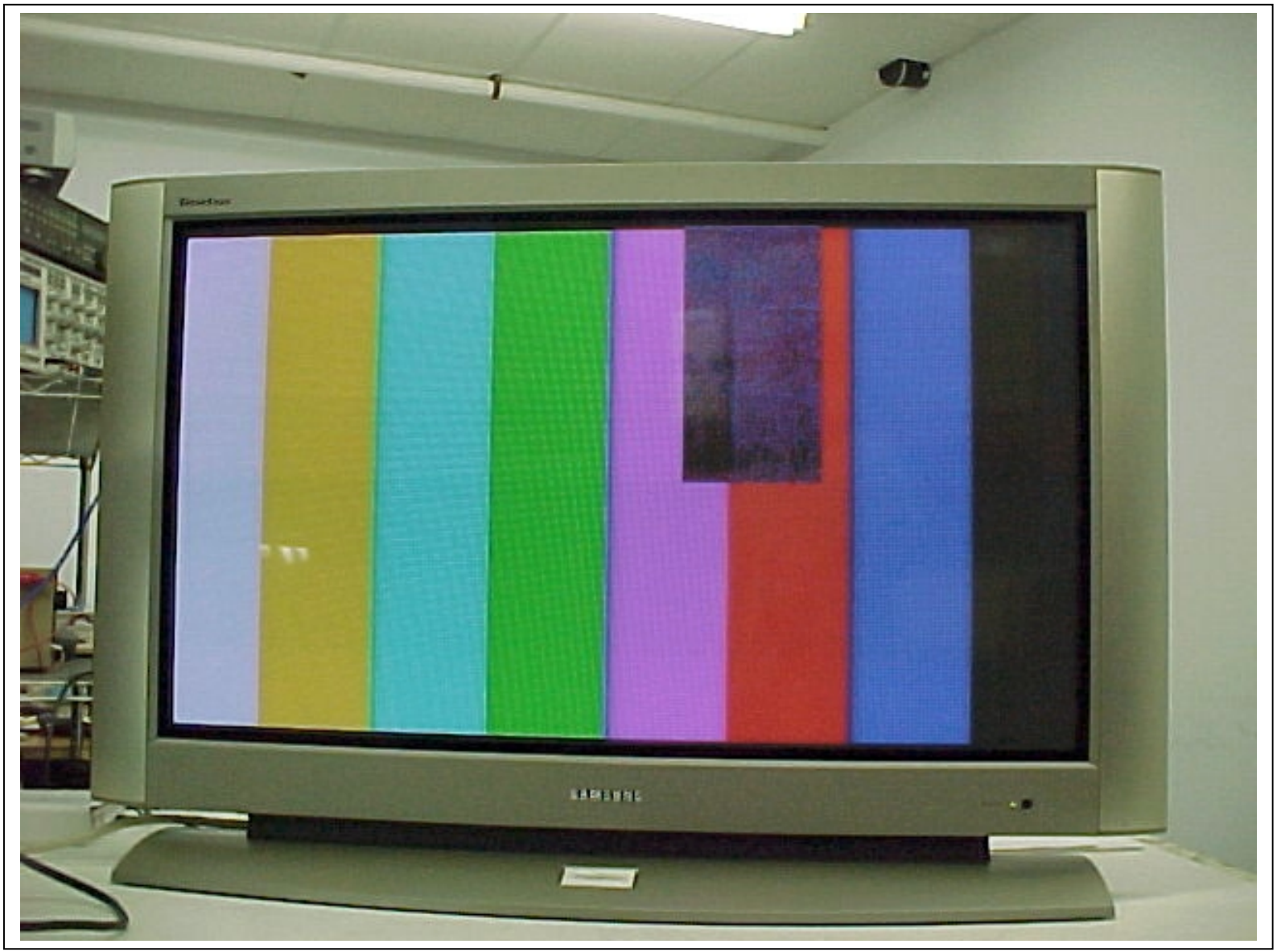
Black bar from left to right. Y or X buffer problem.



Grainy picture, green bar is dark. Y driver problem.

Picture very dark. Y driver problem.

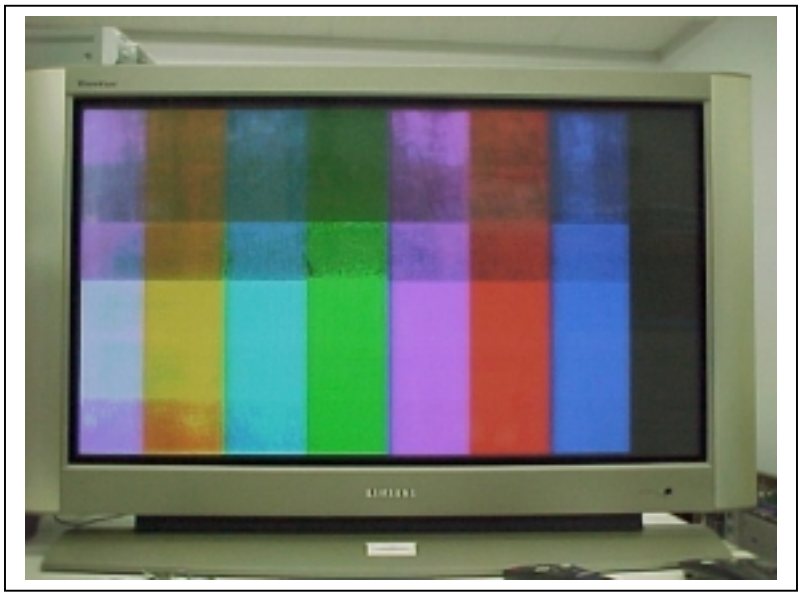
Segment of picture missing on top, address line buffer (top side)



Top of picture is dark and distorted, -132 supply voltage is low. If voltage goes too high, display shuts down. When voltage is low, check VR5200 adjustment on Y driver PCB.

-132 volts OK

low, about -100 volts

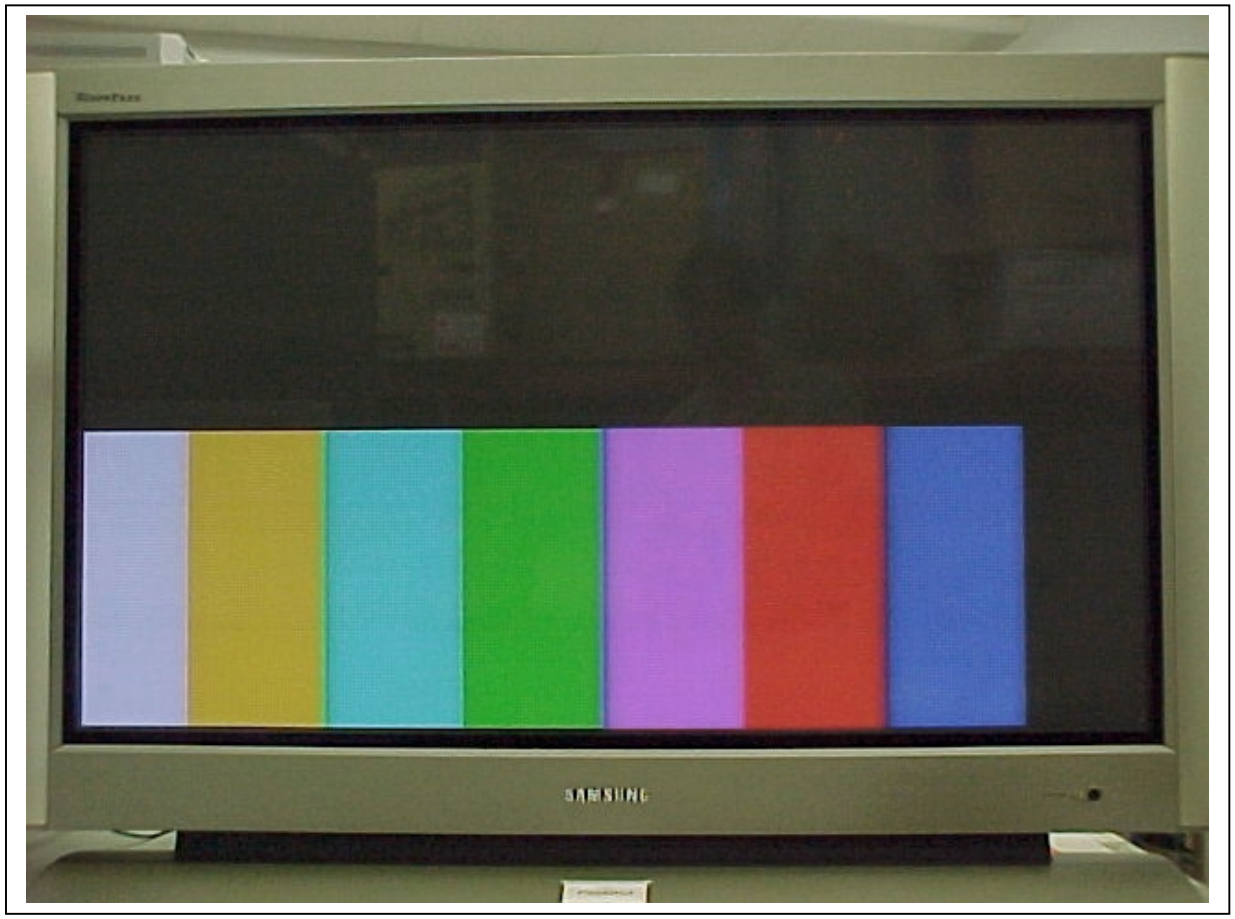


Picture distorted, green bar will be affected first. -55 volts is low.
When voltage is low, check VR5201 adjustment on Y driver PCB.

-55 volts OK

low, about -40 volts

Top part of picture is dark. Y- driver problem, bad connection at CN5003.



Notes.